in the accompanying sketch, which was made for me on May 18, 1896, by Miss Margaretta Washington, of this city.

REMARKS. For several reasons the case is interesting: The remarkable condition found in the fellow-eye, which most probably had suffered from a similar type of affection; the recovery of the organ with normal vision after three severe exacerbations; the endurance and positive value of large doses of mercury; the comfort obtained by the local use of heat, mydriatics, and cyclopegics; the discharge of the gummous material into the ocular media, with the rapid disappearance of the mass; the temporary change of refraction from farsightedness and astigmatism to nearsightedness and astigmatism; and the appearance and retention of the most curious ophthalmoscopic picture of chorio-retinal disturbance.

THE VALUE OF ELECTROLYTIC DILATATION OF THE EUSTACHIAN TUBES IN CHRONIC TUBAL CATARRH AND CHRONIC CATARRHAL OTITIS MEDIA.[1]

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A STUDY of the literature of the past decade shows a remarkable change in the attitude of otologists toward chronic catarrhal otitis media. This change has been due not so much to any added knowledge regarding the pathology of the condition as to the method of treating it.

Not many years have elapsed since the patient suffering from this form of deafness was dismissed, often after the first examination, certainly after a short course of ineffectual treatment, with the cheerless assurance that the disease was irremediable; that he might go on for a considerable period without any serious advance of the trouble, but that it would probably grow steadily worse.

This was the prognosis given by the conscientious surgeon, who felt that he had no moral right to continue with the treatment then in vogue after failing to give any relief within a given time. The despairing patient, casting about for some ray of hope, sought in turn the advice of one specialist after another, usually meeting with the same dismal prognosis, until finally he was gathered in by some charlatan, who promised much, but accomplished little or nothing in the way of improvement other than the mental relief afforded by the thought that something was being done.

In more recent years, however, the keener appreciation on the part of otologists of the importance of nasal and nasopharyngeal obstruction and inflammation in the production of deafness, the improved methods of removal of these exciting causes, and, lastly, the well-grounded conviction that it is worth while, by persistent, painstaking effort, to arrest the advance of this condition, even if no brilliant improvement takes place, have accomplished much for the relief of sufferers with chronic tubal catarrh and chronic catarrhal otitis media.

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[1] Read before the American Laryngological, Rhinological, and Otological Society, Cincinnati, June 4, 1899, and in part before the Harvard Medical Society of New York, January 6, 1900

The dividing line between these affections is difficult to define, and, indeed, the determining cause usually being the same, the distinction is largely one of convenience. While it is possible that a chronic aural catarrh may begin in the tympanum, with no very marked evidence of any nasopharyngeal or tubal catarrh, it is usually the case that the tubal catarrh precedes or accompanies the tympanic inflammation. It is probably true in the majority of cases that the more serious inflammatory hyperplasia of connective tissue takes place first in the narrow Eustachian tubes, and that the hyperæmia of the tympanum is at first often mechanical or functional, due to the stagnation and consequent lowering of air pressure from lack of sufficient ventilation.

This functional hyperæmia, characterized by its deficiency in round cells, and the rapidity with which it is reabsorbed when the exciting cause (viz., the closure of the Eustachian tube or pressure on the plexus of veins which drains the tympanum) is removed, gradually changes to one of an inflammatory type in which there is an abundant pouring out of round cells which, by rapid proliferation and increase in size, form into an organized exudate. This inflammatory exudate and newly-formed connective tissue resulting from it, in contradistinction to the mechanical or functional exudate in a simple congestive hyperæmia, does not rapidly disappear when the exciting cause is removed (although its advance may thus be stopped), but has a tendency to further organize into connective tissue bands and cords which eventually, by a process of atrophy, bring about the sclerotic stage of chronic aural catarrh.

The writer does not by any means wish to be understood that he believes this to be the stereotyped process in every case of chronic catarrhal otitis media, realizing that in many cases the sclerotic process begins apparently from the start; but the number in which the tube is obstructed early in the course of the disease, and as a result is a chief contributing cause to the mischief done to tympanic structures, is sufficiently large to warrant the presentation of such a picture as a working hypothesis.

This view is largely supported by clinical experience where one finds in such a large majority of cases a marked temporary improvement in hearing following inflation, showing that the retracted membrana tympani and tympanic hyperæmia were largely functional, due to stagnation from Eustachian obstruction rather than to serious organic changes.

There is nothing new or novel in this view of the situation, and it is presented here as concisely as possible, merely as leading up to the proposition that the most important point in the treatment of the conditions under consideration is the ventilation of the tympanum by the early establishment and constant maintenance of the patency of the Eustachian tube, thus eliminating one of the most potent causes of the organic changes to tympanic structures which interfere with their function. This has long been well understood, and, as was remarked at the outset, improved methods and more persistent painstaking efforts on the part of otologists have done much to change the results of treatment.

In the earlier stages of tubal obstruction, when the tissues are swollen and succulent from circulatory hyperæmia, the reduction of the swelling by the air douche is now largely accomplished by the use of the Eustachian catheter, accompanied by the diagnostic tube, for the purpose of determining exactly what is being done, rather than by the use of the more inaccurate Politzer bag and dependence on the statement of the patient as to whether or not the tympanum has been inflated.

Later on, when the inflammatory exudate has been poured out, much has been accomplished to hasten its reabsorption by inflation with stimulating vapors.

In the later stages, however, where the exudate has begun to organize into fibrous tissue, it has been found necessary to use bougies to overcome the obstruction. For this purpose bougies of whalebone, metal, and cotton have been constructed and used with marked success.

Lastly, these dilatations have been made by electrolysis, the metal bougie being made the negative pole of the galvanic current. It is for the purpose of calling attention again to the great usefulness of this procedure in the relief of Eustachian obstruction that this paper has been written.

Electrolysis for the purpose of dilating strictures was first made use of by Crussel in 1839, and was first employed systematically in 1867 by Mallez and Tripier, of Paris. In this country, Dr. Robert Newman, of New York, has made use of it, mainly in the treatment of urethral stricture, for more than twenty years, and, in the face of most bitter opposition, has demonstrated its great value.

It was due to a study of its use in this connection and an observation of its practical utility that the author was led to employ it in the dilatation of stricture of the Eustachian tube. After speaking with a number of prominent otologists, none of whom had known of its previous use in this way, the method was reported as new. A more careful investigation of the literature, however, shows that it was used in London by Mr. Cumberbatch and Dr. W. E. Steavenson in 1888. Seven cases are reported in the *Lancet* for November of that year. The cases all showed improvement, although at that time they had not been long under observation. In an article published in the *New York Medical Record* for December, 1898, Dr. Robert Newman mentions having used the electric current some years ago, for the purpose of dilating strictures of the Eustachian tube, with good results.

Neither Steavenson nor Newman used a bougie which could be protruded for more than an inch from the tip of the catheter, and this, in the writer's mind, would be a cause of failure in securing a patent tube in a large number of cases, since the organized stricture is often found more than that distance from the pharyngeal opening.

The method devised by the writer, without any previous knowledge of the work done by the above-named gentlemen, has been published in detail in previous articles, and is now being practised with marked success by many prominent otologists.

A bougie which could be protruded from the tip of the catheter an inch and a half, or more if necessary, has been passed directly into the tympanum in every instance where it has been possible.

The bougies are made of gold, and correspond in size to Nos. 2, 3, and 4 of the French scale. The smaller sizes are usually used. It probably does not matter so much about the size as that the current should be kept in contact with the hyperplastic tissue long enough for the electrolytic action to take place. The bougie is drawn through a small pure silver catheter until the oval head fits snugly in the opening at the tip. The other end is connected one and one-half inch from the opening by a delicate handle with the negative pole of the battery.

The catheter, after being carefully bent so that it will fit accurately in the mouth of the Eustachian tube, is insulated by winding a narrow strip of rubber tissue spirally from tip to ring. This being renewed each time it is used, the catheter and bougie being boiled, cleanliness is insured.

In any case where the tube is to be bougied the nose and nasopharynx should be carefully cleansed with an alkaline antiseptic solution, such as Dobell's or Seiler's, and afterward thoroughly anæsthetized with a 10 per cent. solution of cocaine. The patient is connected with the positive pole of the battery by an ordinary contact electrode held in the hand. The negative pole is attached to the bougie as just described. The tube is bougied in the usual manner, the bougie being pushed along until it meets with a definite obstruction. Instead of forcing through this by heavy pressure the current is turned on up to from 1 to 3 m. amp., according to the sensation of the patient, and after twenty seconds to a minute the bougie usually will be felt to pass on through the softened stricture with a gentle pressure. At the same time the patient will usually hear " bubbles breaking in the ear." If the desired result is not obtained at the end of a minute or two, no greater pressure should be used, but more current-strength turned on.

It has been the writer's custom not to use more than five milliampères current-strength, nor a contact longer than five minutes at one sitting. This should be repeated at intervals of one week to one month, being guided as to its frequency by the result indicated by inflation every other day. Usually two to four sittings will be sufficient.

The battery should have from thirty to fifty volts, and should be supplied with a good rheostat and milammeter.

It is with the hope that otologists who have not already done so may be convinced of its superiority and led to employ this method of dilating strictures of the Eustachan tube, that the writer calls their attention to the results of the past three years' work in Eustachian electrolysis.

Something over a year ago, through the friendly efforts of Dr. J. F. McKernon, a room at the New York Eye and Ear Infirmary was equipped for the purpose of systematically carrying on this work, and it is by his suggestion and through his courtesy that the writer has devoted the greater portion of his time in the infirmary for the past year in an attempt to fix the value of electrolytic dilatation of strictures of the Eustachian tube. During this time some fifty cases selected from Dr. McKernon's clinic have been bougied, a careful record of the results being kept. As many as these as have persisted for a sufficient length of time to make their record of any value, together with ten cases from Dr. Denich's clinic, reported about two and one-half years ago, and a number from the writer's private records (in all fifty cases), have here been tabulated for the convenience of those who wish to study them more carefully at their leisure.

To read them now would be tiresome, and I shall only recount briefly the history of the three typical cases and present for your consideration the conclusions arrived at from the experience gained in the treatment of the whole number.

CASE I.—Dr. S., aged twenty-eight years, for six or eight months suffered from repeated attacks of tubal catarrh accompanied by deafness, pulsating tinnitus aurium, and a sense of pressure in the left ear. These attacks were relieved by attention to a chronic nasopharyngeal catarrh and inflations through the Eustachian catheter, first with air and later with vapor of iodine and menthol. In spite of constant efforts in this manner the intervals of relief grew shorter, until finally the tinnitus, deafness, and sense of pressure were constant, although at times much more prominent than at others. During this time there was evidence of a constantly narrowing calibre of the Eustachian tube. A No. 3 (French scale) bougie, attached to the negative pole of the galvanic current, was passed into the tube three-quarters of an inch, when it met with an obstruction. Two milliampères current-strength was turned on, and this gradually increased to 4 m. amp. With a slight pressure the bougie passed through a stricture one-quarter inch long, and then on into the tympanum without meeting any further obstruction. Inflations were kept up every day for the next week. There was a gradual increase in the amount of air which entered the tympanum on inflation. After the second day the tinnitus stopped entirely for about a week, when there was slight recurrence for two or three days, coming on intermittently. The tube was bougied again in the same manner. Inflations at intervals of two days for two weeks following showed the tube to be freely opened. There was complete relief from the sense of pressure, no tinnitus whatever, and the hearing was perfect. Several weeks afterward, at the time of this writing, there has been no recurrence. Nothing other than careful attention to the nasopharyngeal catarrh has been done for more than a month.

CASE II.—R. D., aged nineteen years, history of deafness and marked tinnitus in right ear, and slight vertigo for several years. Functional test shows lower tone-limit 512 v. s.; whisper, six feet; acoumeter, three feet; bone conduction increased. Practically complete stenosis of right Eustachian tube. Attempted inflation fails to improve. For three months—from October, 1896, to January, 1897—the tube was bougied by this method eight times, at intervals varying from one week to one month, inflations being made in the intervals. During this time, practically from the day of the first bougie, there was no tinnitus or vertigo. The hearing distance came up from six feet for the whisper to twenty-five feet, and for the acoumeter from three feet to twenty-four feet. The patient said he heard ordinary conversation perfectly, and easily heard the tick of a clock fourteen feet away which he had formerly heard only on contact. The tube was freely opened on inflation. During the following nine months, instead of presenting himself for occasional inflation, he remained away. He then returned, saying that the hearing was getting worse again. This was found to be true, but on inflation the tube was found to be quite patent and the hearing distance gradually came up after a few inflations nearly to the former point. He was then lost sight of until October, 1898, two years from the time of the first bougie, when he again appeared, stating that he was getting worse. Inflation showed that the tube was still open, and was followed by an immediate improvement in hearing again.

CASE III.—Mrs. V., a singer of considerable prominence, had been growing gradually deafer for fifteen years up to May, 1898, despite the fact that she had been under treatment by many distinguished otologists. At that time she presented herself for treatment, stating that she was losing confidence in her ability to place tones properly, owing to the sensation that she was "singing in a barrel." There had been vertigo and tinnitus at intervals. The functional examination was as follows: Lower tone-limit: right, 512; left, 256; b. c. increased on both sides. Whisper: right, four inches; left, two feet. Acoumeter: right, one-half inch; left, one-half inch. Both tubes were constricted and both membrana tympani retracted.

Inflation improved the left but not the right. Both tubes were bougied twice at intervals of two or three weeks. Marked improvement followed. The tubes admitted air much better on inflation, and the hearing distance increased to two feet on the right side and six feet on the left side for whispers. The sensation of fulness in the head and inability properly to place tones in singing largely disappeared, and the hearing for conversation and all sounds improved. Inflations have been kept up for the past year about twice a week, with a rest of about four months during the patient's absence from town in hot weather, and about one month in winter. The tubes still remain open, and the tests show the same improvements first noted for the whisper and acoumeter. The lower tone limit has improved one octave on either side. The tinnitus and vertigo for the past year have been present much less frequently, appearing only on a few occasions, when the patient has suffered from cold in the head.

TABULATED REPORT OF FIFTY CASES.

Forks used in tests were Hartmann's series and Dench's, ranging from 26 to 64 v. s. (double).

No. of case.	Age	Sex	Duration of deafness.	Tinnitus.	Vertigo	Lower tone-limit, first test.	Bone conduction.	Whisper, first test.	Acoumeter, first test.	Situation of stricture in inches from pharyngeal opening of tube.	No. times bougied.	Period of time under observation.	Whisper, last test.	Acoumeter, last test.	Tinnitus, last note.	Vertigo, last note.	Condition of tubes at last test.
1	45	F.	2 mos.	2 mos.	Occasional.	R 512 L 30	+ +	30 feet 30 feet	1½ feet 1½ feet	½ inch ½ inch	4 3	8 mos.	30 feet + 30 feet +	6 feet 4 feet	....	....	Freely open, fairly well open.
2	23	F.	7 mos.	7 mos. 7 mos.	No	R 64 L 128	N N	30 feet 30 feet	15 feet 6 feet	½ inch	1	2 wks.	....	30 feet	....	....	Open.
3	57	F.	1 year	1 year	Occasional.	L......	......	L 8 feet	....	¾ inch	1	....	....	....	....	....	Did not return.
4	25	F.	3 mos.	1 year	No	R 30	+	30 feet +	30 feet +	¾ inch	1	3½ mos.	30 feet +	30 feet +	Gone	....	Open.
5	25	M.	5 years	5 years	"	R 64 L 64	— —	+	....	½ inch	4	5 mos.	Greatly improved.	....	Much diminished.	....	"
6	47	F.	3½ mos.	......	Occasional.	R 64 L 64	....	3½ feet 6 feet	½ inch 1 inch	¼ inch 1 inch	4 3	11 mos.	Slightly improved.	....	Much diminished.	....	" "
7	40	F.	7 years	......	No	R 256 L 256	N N	1½ feet not at all.	1½ feet not at all	¼ & 1 in.	4	8½ mos.	Improved.	Improved.	Very much diminish'd.	....	"
8	57	M	10 years	......	"	R 512 L 512	N N	30 feet 30 feet	4 feet 4 feet	½ inch 1¼ inch	2 1	6 mos.	30 feet + 30 feet +	18 feet 16 feet	Entirely gone.	....	" "
9	21	M.	3 mos.	Yes	"	R 26 L 26	+ +	30 feet 30 feet	3 feet 3 feet	1¼ inch	5	10 mos.	30 feet + 30 feet +	....	Very much diminish'd.	Very much diminish'd.	"
10	16	F.	6 mos.	"	"	Gal. 45	......	R 1 foot L 30 feet	1 foot 30 feet	½ inch	1	1 mo.	20 feet +	20 feet	Entirely gone.	Entirely gone.	"
11	48	F.	21 mos	"	......	......	......	R 26 feet	W 14 in.	¼ & ½ in.	2	1 mo.	....	W 24 in.	Stopped	....	Fairly well open.
12	32	F.	4 mos.	"	No	.. ...	......	R 8 feet L 24 feet	2 feet	¾ inch	2	1 mo.	30 feet +	11 feet	Stopped	....	Open.
13	37	M.	6 mos.	"	"	R 40 L 128	......	32 feet 4 feet	2½ feet ½ inch	½ & 1¼ in. 1¼ inch	3 4	4 mos.	30 feet + 30 feet +	6 feet 3 feet	Improved.	Improved.	Partly open.
14	23	F.	4 years	"	"	......	......	....	....	1 inch	3	6 mos.	....	....	Not improved.	Not improved.	Open.
15	40	F.	20 years	1 year	"	R 256 L 32	......	4 inches 30 feet	½ inch	¼ inch	2	4 mos.	24 inches	4 inches	Much improved.	Much improved.	"
16	53	M.	15 years	15 years	10 years	......	......	4 feet 10 feet	4 inches 2 feet	¼ inch ¾ inch	1	1 mo.	6 feet 12 feet	....	Did not return for treatment.		

17	19	F.	2 mos.	Yes	No	......	......	....	....	L 1 inch	2	3 mos.	....	....	Stopped	Stopped	Open.
18	22	M.	7 mos.	"	Yes	R 26 L 26	N N	30 feet + 30 feet	30 feet + 30 feet +	1 inch	1	....	....	....	Entirely relieved.	Entirely relieved.	"
19	26	M.	5 mos.	"	No	R 256 L 26	+ N	3 feet 30 feet	3 inches 30 feet	½ inch	2	5 mos.	30 feet 30 feet	30 feet 30 feet	Entirely relieved.	Entirely relieved.	"
20	22	F.	2 years	"	"	R 128 L 512	+ +	4 in. cannot distinguish contact.	½ inch	½ inch 1 & 1½ in.	1 2	4 mos.	Much improved.	Much improved.	Relieved.	Relieved.	Partly opened.
21	34	F.	7 years	"	"	R 256 L 256	+ +	9 feet 15 feet	6 inch 10 inch	1 inch 1 inch	3 1	4 mos.	Much improved.	Much improved.	Relieved.	Relieved.	Only partially opened, strictures not passed; patient left.
22	30	F.	1½ yrs.	"	"	R 128 L 512	+ +	10 feet 4 feet	10 feet 4 feet	1 inch ¾ inch	1 3	1 year	30 feet 12 feet	16 feet 8 feet	Much relieved.	Much relieved.	Fairly open
23	48	F.	1 year	"	......	......	......	....	....	L 1 inch	2	1 mo.	....	....	Stopped	Stopped	Open.
24	40	M.	4 years	"	No	512	—	2 feet	½ inch	½ & 1¼ in.	3	2 mos.	No improvement.	No improvement.	....	....	Fairly open
25	14	M.	2½ mos.	"	"	R 26 L 40	......	26 feet 26 feet	26 feet 26 feet	1 & 1¼ in. ¾ inch	3 2	2 mos.	....	....	Stopped	Stopped	Open.
26	37	F.	7 mos.	"	"	R 512 L 512	— —	8 inches 8 inches	½ inch ½ inch	1 inch 1 inch	2 2	3 mos.	No improvement.	No improvement.	No improvement.	No improvement.	"
27	47	M.	5 years	"	"	......	......	R 10 in. L 8 in.	4 inches 8 inches	½ & 1¼ in. ¾ inch	3 4	2 mos.	Improved.	Improved.	Stopped	Stopped	Fairly open
28	38	M.	30 years	14 years	Yes	512 512	— —	4 feet 1 foot	2 feet 1 foot	1¼ inch 1 inch	2 2	8 mos.	No improvement.	No improvement.	Greatly diminished.	Greatly diminished.	Fairly open
29	16	F.	3 years	Yes	No	512 512	+ +	10 feet 6 feet	5 feet 3 feet	¾ inch ½ & 1¼ in.	1 1	1 mo.	Much improved.	10 feet 6 feet	Greatly diminished.	Greatly diminished.	Open.
30	54	M.	20 years 1 year	"	"	35 gal. 128	+ —	Not at all	Contact	Complete stenosis +2 inches 1 inch.	5 3	5 mos.	Marked improvement of hearing.	Marked improvement of hearing.	Marked improvement of hearing.	Marked improvement of hearing.	Fairly open
31	43	M.	9 mos.	"	"	64 32	— N	1 feet 27 feet	1 inch 4 inches	½ & 1½ in.	2	1 mo.	Slight improvement.	Slight improvement.	Slight improvement.	Slight improvement.	Open.
32	20	F.	5 years	"	"	256 256	......	15 feet 15 feet	6 inches 6 inches	¼ inch 1 inch	3 2	10 mos.	20 feet 20 feet	10 feet 12 feet	Diminish'd	Diminish'd	"
33	37	M.	10 years	"	Yes	128 1024	— N	30 feet 4 feet	3 feet Contact	¾ inch ½ inch	1 1	1 mo.	30 feet + 21 feet	30 feet + 11 feet	Diminish'd	Stopped	"
34	27	M.	5 mos.	"	"	......	.. ...	....	....	1 inch	2	2 mos.	Improved.	....	Stopped	Stopped	Fairly open
35	...	M.	6 years	"	"	40 128	N +	30 feet 20 feet	30 feet 2 feet	....	1	1 mo.	30 feet	8 feet	Diminish'd	....	Open.
36	54	F.	2 years	"	"	512 40	+	30 feet 3 feet	30 feet 1 inch	1 inch	1	1 mo.	10 feet	6 inches	Improved.	Improved.	"

No. of case.	Age	Sex	Duration of deafness.	Tinnitus.	Vertigo	Lower tone-limit, first test.	Bone conduction.	Whisper, first test.	Acoumeter, first test.	Situation of stricture in inches from pharyngeal opening of tube.	No. times bougied.	Period of time under observation.	Whisper, last test.	Acoumeter, last test.	Tinnitus, last note.	Vertigo, last note.	Condition of tubes at last test.
37	41	M.	10 years	Yes	No	128 512	+ —	2 feet 2 inches	2 inches ½ inch	½ inch	2	3 mos.	Improved.	18 inches	Not improved.	Not improved.	Open.
38	59	M.	10 years	"	Yes	......	......	L 6 feet	....	1 inch	1	....	15 feet	....	Much improved.	Much improved.	Still very narrow.
39	51	M.	4 mos.	"	No	128 64	......	4 feet 20 feet	½ inch 3 feet	1 inch	2	1 mo.	24 feet	6 feet	Stopped	Stopped	Open.
40	34	M.	12 years	"	"	......	......	....	....	1 inch 1 inch	3 3	1 mo.	....	....	Very much diminish'd.	Very much diminished	"
41	42	F.	15 years	"	Yes	512 256	+ +	4 inches 2 feet	½ inch ½ inch	½ inch ¾ inch	2 2	1 year	2 feet 6 feet	6 inches 1 foot	Improved.	Improved.	"
42	19	M.	5 years	"	"	512 128	+	6 feet	3 feet	½ inch	8	2½ yrs.	25 feet	24 feet	Much improved.	Much improved.	"
43	66	M.	15 years	"	No	256 26	N N	20 feet 20 feet	2½ feet 2½ feet	½ inch 1¼ inch	3 3	1 year	30 feet 30 feet	4 feet 5 feet	Much improved.	Much improved.	"
44	48	M.	1 year	"	"	256 256	N N	3 feet 3 feet	1 inch 1 inch	¾ inch ½ & 1¼ in.	2 3	3 mos.	Much improved.	Much improved.	Improved.	Improved.	"
45	50	M.	5 years	"	"	128 128	— —	....	....	1 inch 1 inch	1 1	1 mo.	No improvement.	No improvement.	No improvement.	No improvement.	"
46	39	M.	10 years	"	Yes	128 1024	......	30 feet 4 feet	3 feet Contact	½ inch 1 inch	1 1	1 mo.	....	11 feet 1 foot	Diminish'd	Stopped	"
47	45	M	15 years	"	No	26 26	N N	20 feet	8 feet	1 inch	3	1 year	30 feet	24 feet	Stopped	Stopped	"
48	66	M.	15 years	"	"	256 26	N N	20 feet+ 20 feet+	2½ feet 4 feet	½ inch ¾ inch	3 3	1½ yr.	30 feet+ 30 feet+	6 feet 10 feet	Improved.	....	Fairly open
49	60	M.	5 years	"	Yes	......	N	....	....	....	1	....	....	....	Stopped	....	Open.
50	48	M.	1 year	"	No	256 256	N N	3 feet 3 feet	1 inch 1 inch	1 inch ½ inch	3 2	4 mos.	4 feet 4 feet	Improved.	Stopped	....	"

The following conclusions are presented for consideration: 1. The pathological process in inflammatory conditions of the Eustachian tube and the tympanum is the same—*i. e.*, hyperæmia, followed by the exudation of round cells, which organize into new connective tissue, and subsequently atrophy. 2. The names chronic tubal catarrh and chronic catarrhal otitis media, then, should suggest only a difference in position of the inflammation and not in its character. 3. Where the affection is confined to the tube the impairment of hearing is functional, and is restored as soon as the normal patency of the tube is effected. This is true, also, of tinnitus and vertigo. 4. Tubal obstruction is present early in a very large percentage of all cases of chronic hypertrophic catarrhal otitis media, and in such instances is one of the chief contributing causes to the further advancement of the disease within the tympanum. 5. It is our duty, then, wherever there is a stenosis of the Eustachian tube to remove the obstruction as rapidly as possible. 6. In every instance where the obstruction is due to an organized exudate the best method for its removal is electrolysis, for the following reasons: (*a*) It is more rapid. In several instances one application of the electrolytic bougie has been sufficient to cause the reabsorption of the deposit, and in the majority of cases only a few applications have been necessary to secure a patent tube. (*b*) It is more efficient. The disappearance of the exudate results from electrolytic action and not by mere pressure, as in other methods of dilating strictures, and consequently requires less force. There is, therefore, less danger of traumatism. The electrolytic bougie has been easily passed through strictures which were so firmly organized that it was impossible to pass a cotton bougie. (*c*) The results are more permanent. A stricture once removed by this method is permanently removed. The primary cause, acting again, may bring about its reappearance, but by careful attention to proper treatment a large percentage of the tubes may be kept patent. 7. The removal of obstructions in the Eustachian tube is only a large factor in and not the whole treatment of chronic tubal catarrh and chronic catarrhal otitis media. 8. The prognosis in any given case depends largely upon the amount of injury to tympanic structure. Where inflation is followed by marked temporary relief of deafness, subjective sounds or vertigo, one may expect brilliant results from the establishment of the patency of tubes. Where no temporary improvement follows inflation much may be accomplished, although the results are by no means so certain. The narrow tube should be opened, nevertheless, in every instance, with the hope of checking the advance of the disease. In a word, then, the writer wishes to make the points that (1) all narrow tubes should be restored to their normal calibre; and (2) where the narrowing is due to an organized inflammatory exudate, the best means of accomplishing this is by electrolysis.